NOvA Experiment Status

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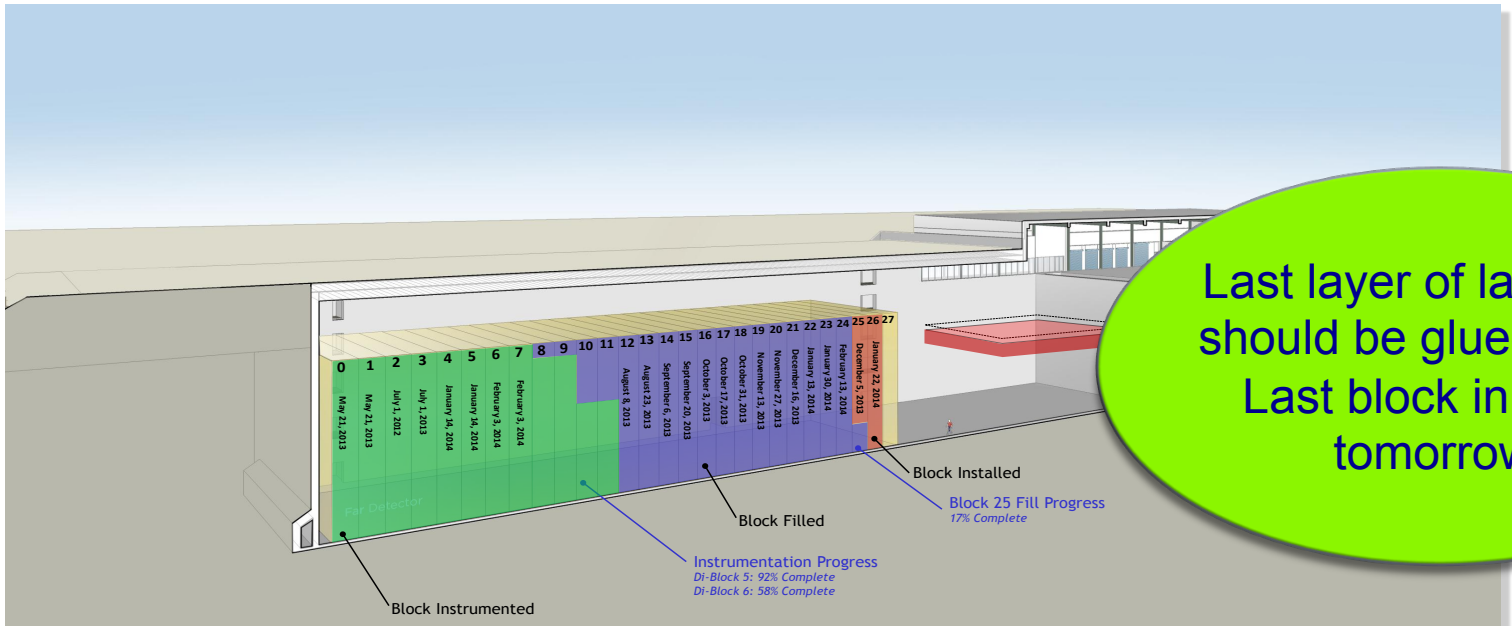
All Experimenter's Meeting February 24, 2014

Detector Assembly Progress

The Intensity Frontier

NOvA Far Detector Assembly Progress

Status Date: 17FEB14



Last layer of last block should be glued today! Last block in place tomorrow!

14 kilotons = 28 NOvA Blocks

27 blocks of PVC modules are assembled and installed in place
25.17 blocks are filled with liquid scintillator
11.00 blocks are outfitted with electronics

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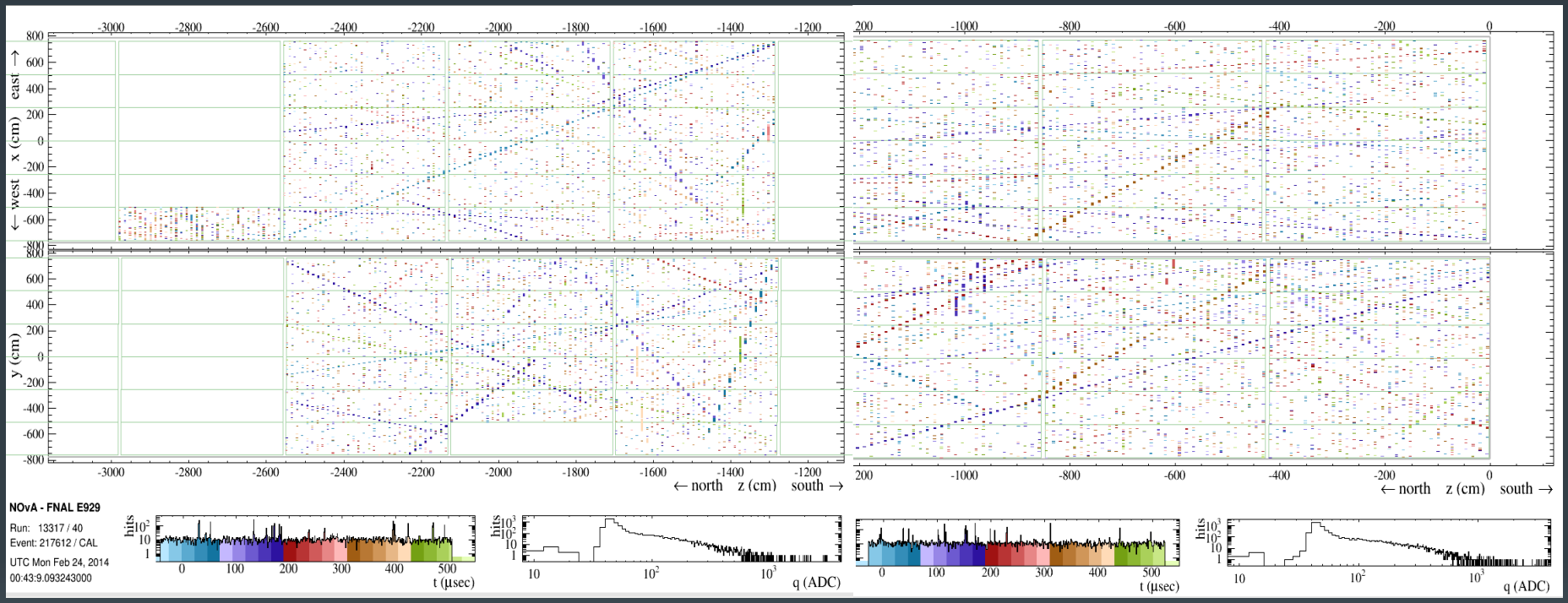
Fermilab

NOvA

Far Detector Data-Taking

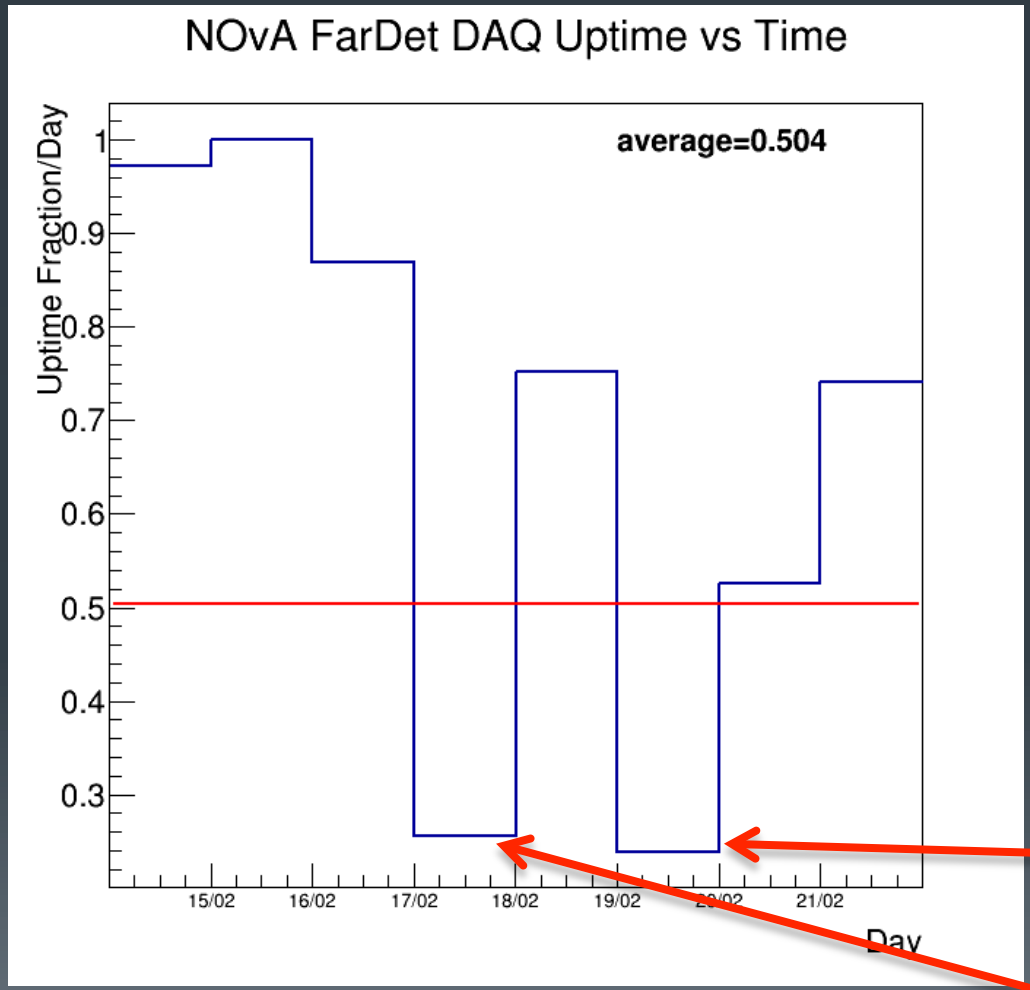


Partition 2 – diblocks 4,5,6,7
- Diblocks 4,5(top),6 cold APDs
- Installing APDs on diblock 7(top)
- First runs for new APDs
- >5.5 kTons including P1

Partition 1 – diblocks 1,2,3
- Running >99% active, cooled APDs
- HV at full gain values
- 3 kTons detector mass fully-instrumented

Partition 3 running diblocks 8-12 (Front End Boards only) on Night Shift

DAQ Uptime – Partition 1

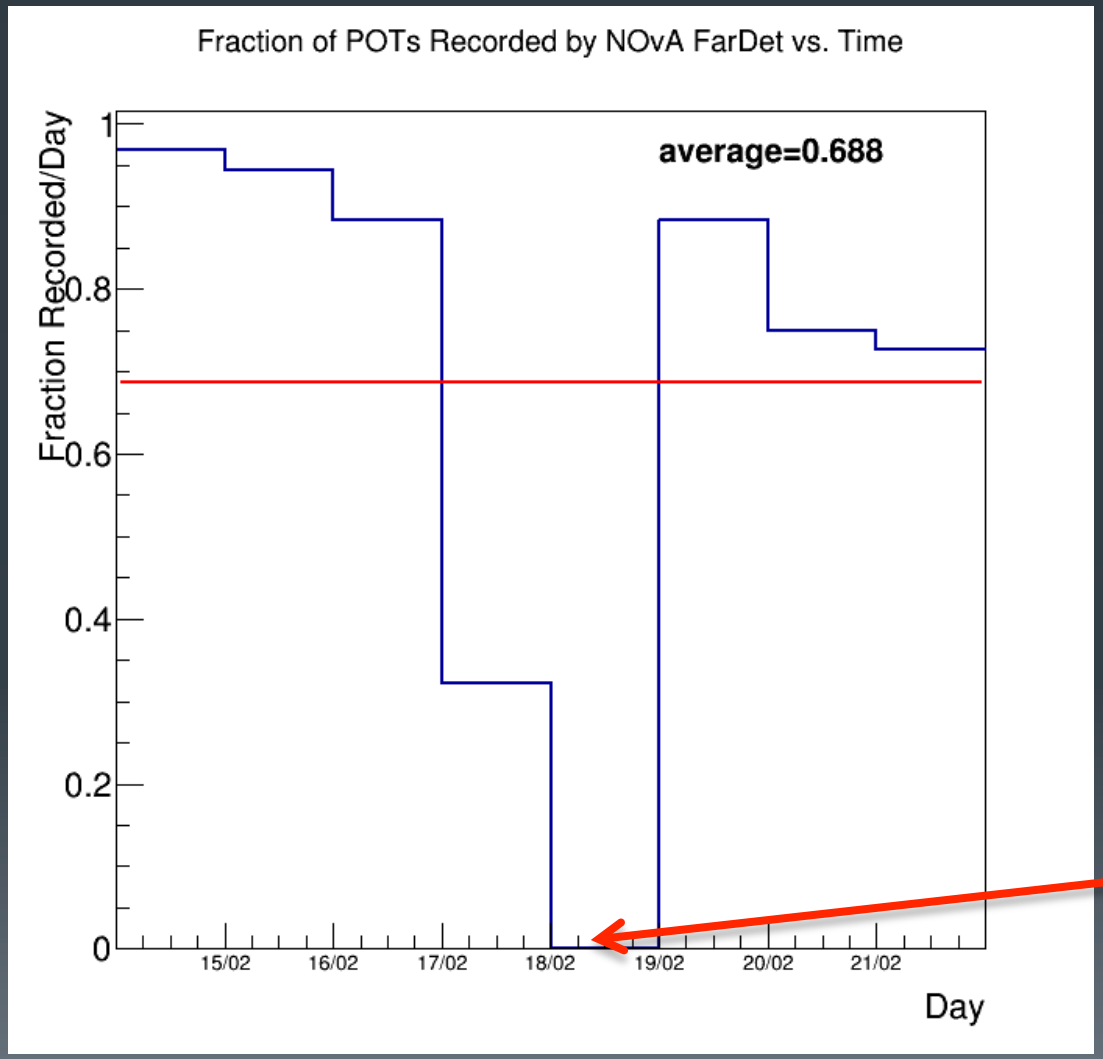


- Plot for past week
- Average of ~50% for past week – 6 water leaks in past 14 days (leaks affect whole detector by automatically shutting off power until leak is found and isolated and water flow/power is recovered)
- Used beam off time to upgrade DAQ/DCS software

Water leak

Beam Off

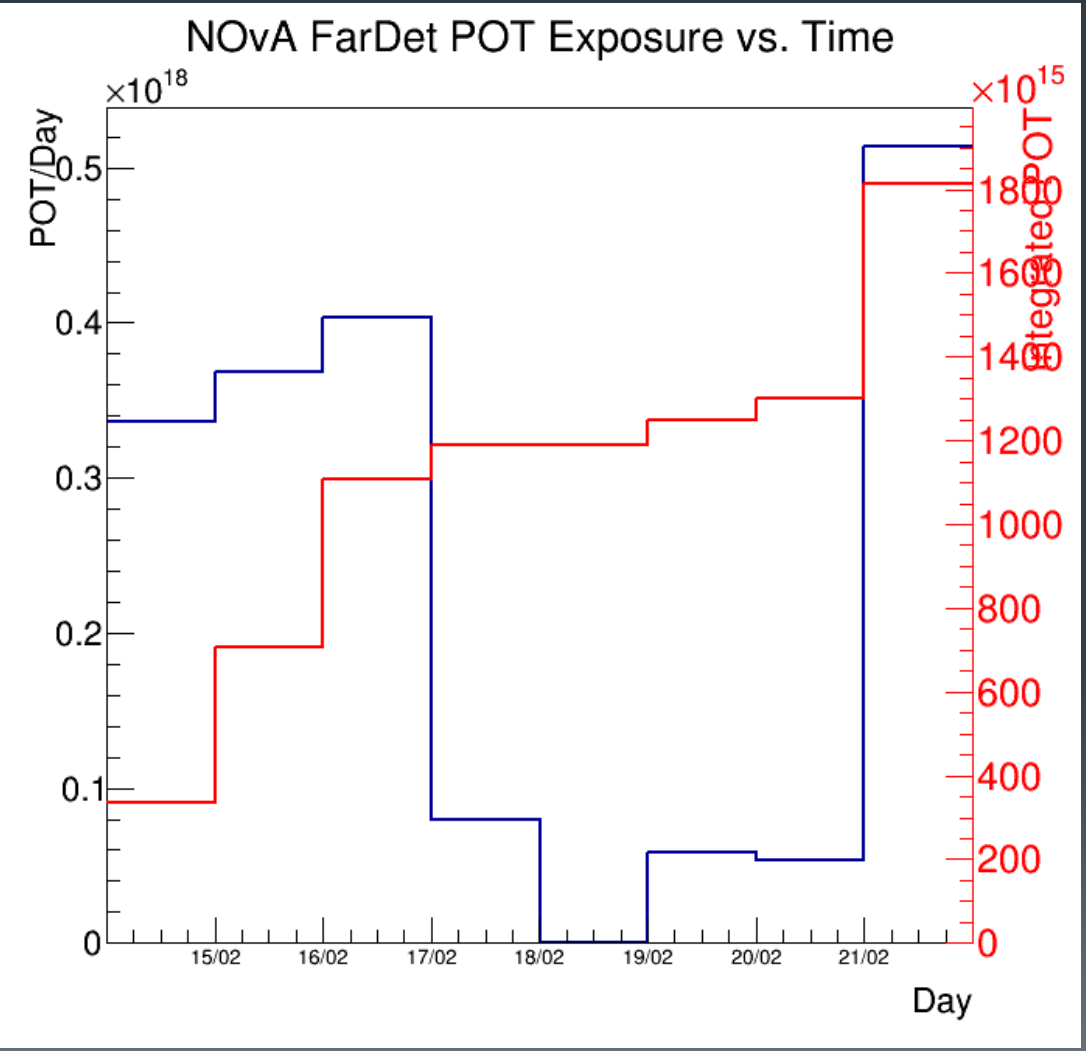
Fraction of POTs Recorded



- Plot for past week
- Average of ~69% includes beam off time last Tuesday-Wednesday
- Average of ~86% excluding beam off time

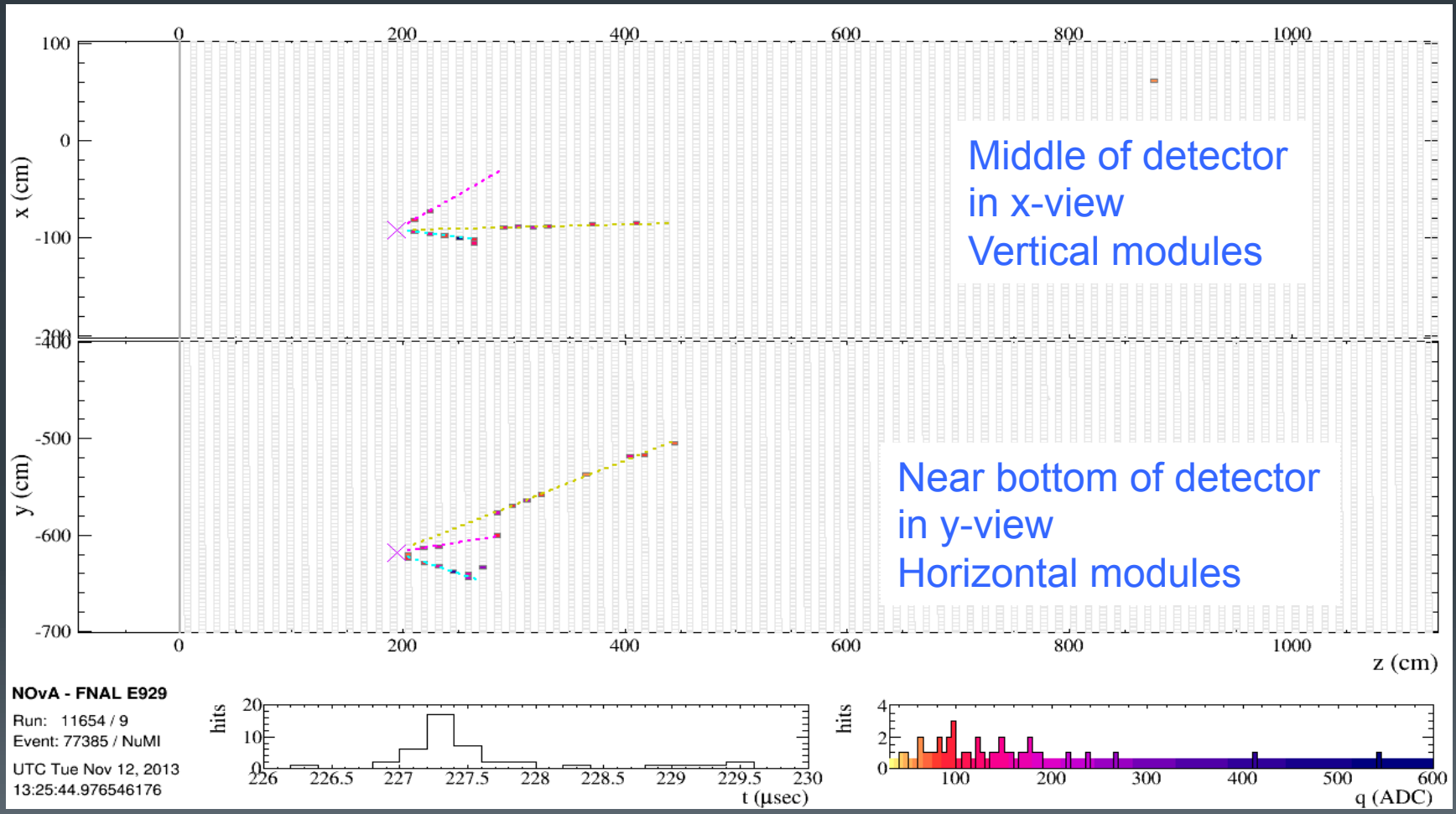
Beam Off

Daily/Integrated POTs



- Recorded ~1.8E18 POTs out of ~2.1E18 POTs delivered
- Beam down time + water leak effects – on the 17th-21st
- Stable partition (P1) running constantly

Neutrino events at FarDet

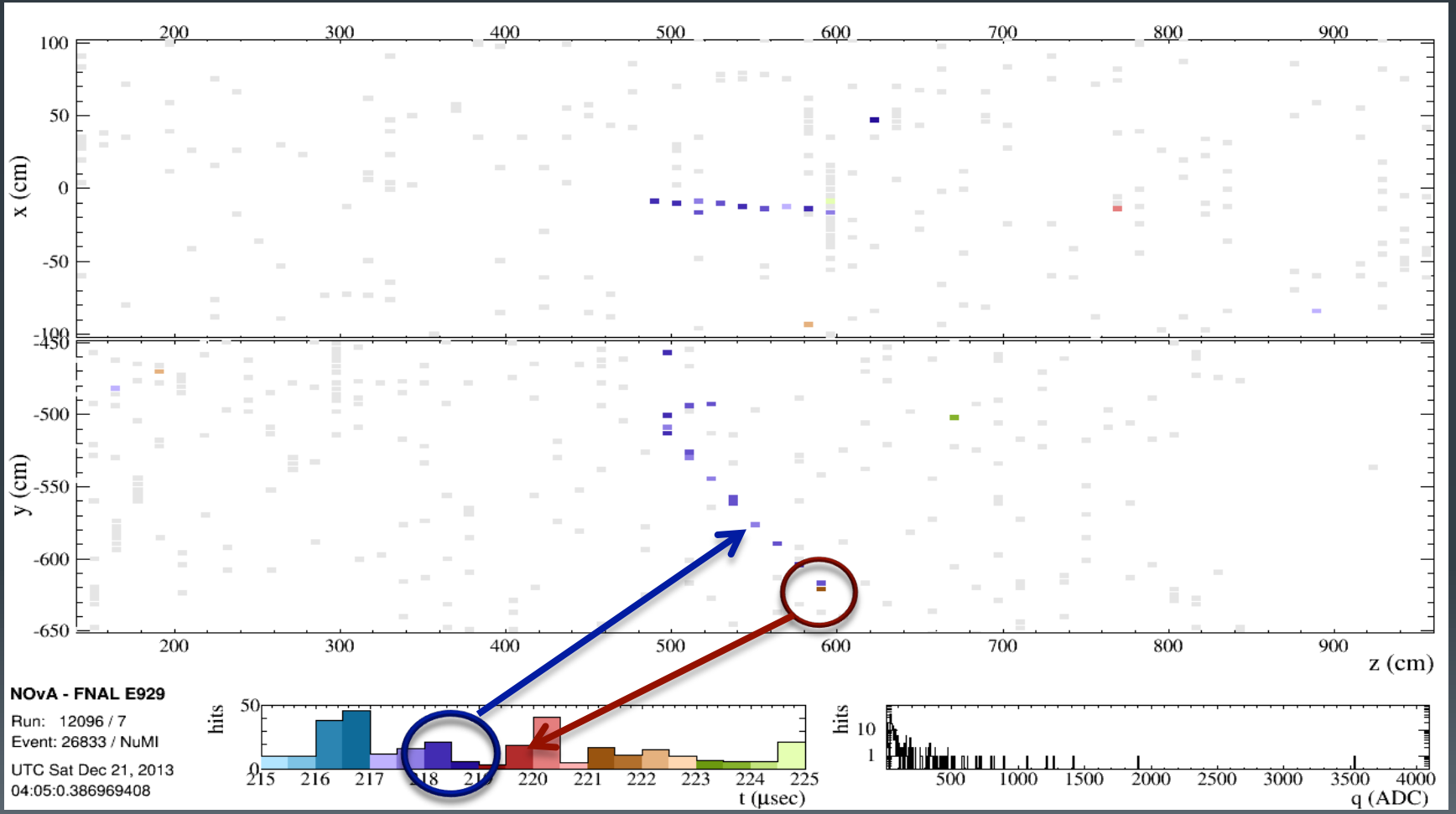


Reconstruction of vertex and 3 tracks

Yellow, magenta photons from π^0 ? (note gap from vertex to first hit on yellow object)

NC event?

Another selected event

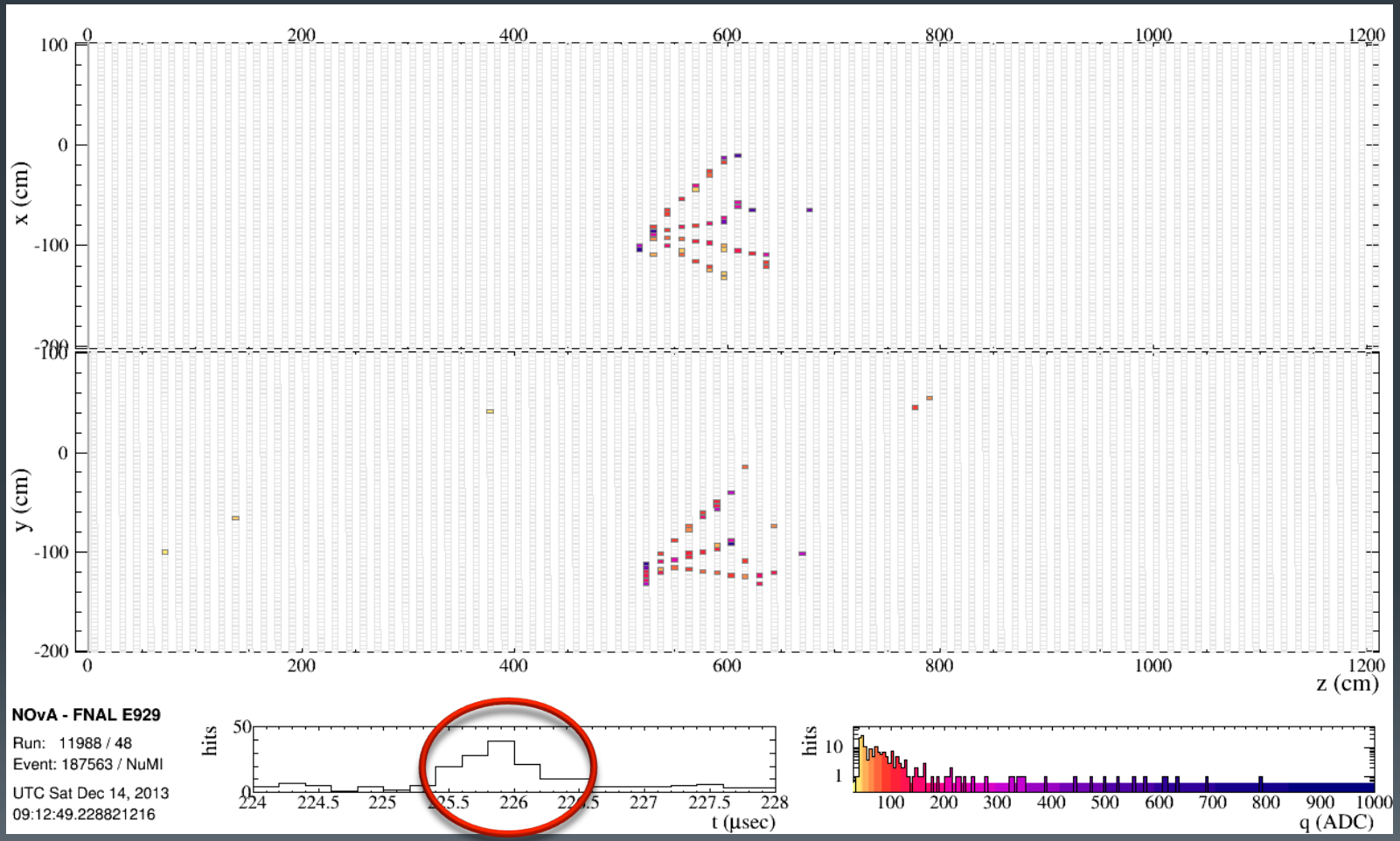


ν_μ CC event?

Note – last hit on long track due to low energy electron (Michel)

~2 μsec later than track

Multi-Track Event



Neutrino event in ~1.5 μsec window as shown
NC neutrino event?

Summary

- Neutrinos seen in Far Detector
- >5.5 kTons of FarDet fully-instrumented with ~full gain (3 kTons stable with >99% active, cooled channels)
- Near Detector scintillator filling to begin this week
- Also, DAQ tests on Near Detector this week

- My last AEM talk as NOvA Run Coordinator
  - New Run Coordinator – Jaroslav Zalesak
- Thanks to AD NUMI group
  - Very reliable beam conditions
  - Forced us to try to keep up with our uptime
  - Continuous pre-selection of events for neutrino search
- Thanks to NOvA Project at Fermilab and Ash River
- Thanks to NOvA collaborators
  - Competent and enthusiastic shifters
  - Army of experts to rely on